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Amplatzer Vascular Plug II: The ideal device for closure of type E and C ducts.

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Introduction:
The indications for patent ductus arteriosus (PDA) closure for preterm babies in the neonatal period have been decreasing in some centres in the last few years with the subsequent increase in patients needing PDA device closure later in life. The anatomy of these ducts is usually challenging for percutaneous closure, being usually Krichenko type C or E. Our first choice in this type of anatomy is the AVP II. We reviewed the results of our practice after 2015.

Methods:
We performed a retrospective analysis of the results of paediatric patients who underwent PDA device closure using AVP II after 2015 using our cardiac database (Heart suite).

Results:
24 patient's underwent PDA device closure with AVP II in this period. 20 patients (83%) were ex preterm babies. The duct type was E in 17 cases (70%) and C in 7 cases (30%). All devices were deployed from the venous access. The median age at procedure was 14.88 months (3.5-9.6). The median weight was 8.2 kg (5.3-35.9). The mean PDA size at its narrowest diameter was 3.8 mm (2.5-7) and the mean AVP II size chosen was 9.1 mm (8-12). The device diameter to lumen diameter ratio was 2.39. One device was deliberately oversized (ration device/minimal duct diameter 3) and needed to be snared and retrieved after release since it was causing significant aortic coarctation. It was replaced by a smaller device with no complications in the same procedure. There were no periprocedural complications. Complete closure was achieved in 22 patients (91.6%), 3 patients (12.5%) showed mild flow acceleration in the LPA at last echo without need for intervention. No patients hay an embolization.

Conclusions:
The AVP II is a safe and effective device to treat challenging anatomies as types C and E ducts, which are especially common in ex preterm patients. The progressive reduction in indication of PDA closure in the neonatal period will potentially make these cases become more frequent in our daily practice. An asymmetrical version of the device could further reduce the risk of LPA stenosis.